22 October, 1999

WHITE PAPER

DUSD(S&T) Science and Technology Focus Area

COGNITIVE READINESS

Cognitive readiness focuses on optimizing and enhancing the human dimension of U.S. forces in warfare. Extended further, the effectiveness of all DoD personnel can be maximized by improvements in cognitive readiness. The Deputy Under Secretary of Defense for Science and Technology has established a focus area to explore Cognitive Readiness research issues and unknowns.

Optimization and enhancement of human performance is challenged by many different factors, such as general health issues, mental and physical stress, cultural and societal influences, environmental stressors (e.g., heat, cold, altitude, information overload), adequate education and training. Currently, there are two "core" Department of Defense program areas organized to address Cognitive Readiness issues, the Biomedical and Human Systems programs with subcomponents dealing in health, psychology, sociology, personnel and training, and human factors engineering issues. Of these issues, we have chosen to focus first, and in general, on technologies necessary for the education and training missions of the Department. In specific for FY99 and FY00, we are examining a focused investment in S&T projects to support the Department's Advanced Distributed Learning strategic plan.

While the emerging technology area of advance distributed learning (ADL) is generically addressed in the core human systems S&T program, the emergence of new information technologies present the opportunity to make significant improvements in training and education effectiveness through ADL technologies. In addition, providing ADL technologies to the DoD enterprise of education and training offers a key opportunity to reduce costs in these domains. Additional focus on this area in the near and medium term is warranted by the potential payoff. Thus in the next six months, DoD will be investigating what technologies need to be developed and what research needs to be accomplished in order to deliver an ADL capability. This up front analysis will determine what additional investments in education and training research and development is warranted. These may include investments in new curriculum design principles, design of cognitive measurement tools, identification of optimum. teaching techniques to utilize with distributed learning initiatives, and the development of ADL-specific, information technology infrastructure.

Although DUSD(S&T) is spotlighting education and training technologies for careful examination at the initiation of this focus area, the Human Systems and Biomedical Reliance Panels have been charged with the objective of bringing forward for consideration projects in all of the domains of Cognitive Readiness that would provide high payoff to DoD personnel, in general, and to the warfighter in specific. The point of contact for this S&T Focus Area is Dr. Robert E. Foster, Director of BioSystems (703-588-7437).